

Appl. No. 10/789,528
Amdt. dated July 24, 2008
Reply to Off. Act. of Apr. 8, 2008

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Amendments to the Specification:

Please replace paragraph [0006] (page 3, lines 1-8) with the following amended paragraph:

[0006] FIG. 2 shows a prior art method 200 of polling in a wireless local area network. The method illustrated in FIG. 2 is similar to the method illustrated in FIG. 1, except that ~~that~~ ~~[[in]]~~ the initial poll frame 202 does not contain any data, and is only a polling frame. In this instance, the polling station ~~stations~~ seeks to receive data from the polled station, here the MT. In response to the polling frame, after a short interframe space (SIFS) time period 204, the polled station ~~stations~~ sends a data packet 206 to the polling station. After another SIFS 208, the polling station acknowledges receipt of the data by sending an acknowledgment frame ~~frame~~ 210.

Please replace paragraph [0007] (page 3, lines 9-21) with the following amended paragraph:

[0007] The problem with the prior art method of polling is that it is driven by the AP, and requires the MT to remain on for long periods, which consumes significant battery life. One solution to this is to let the mobile terminals control polling, as is described in pending U.S. patent application ~~having application~~ No. 60/421490, filed Oct. 25, 2002, titled "Method Of Communication Device Initiated Frame Exchange," and assigned to the assignee of the present application, the disclosure of which is hereby incorporated by reference. While allowing the mobile terminals to control polling could allow for better management of power consumption, it has been found that many access point controllers cannot respond fast enough because the AP must locate data for the MT, place it in ~~[[the]]~~ a transmit buffer, and then transmit it. Since a SIFS time period is on the order of 9 to 20 microseconds, AP equipment is not always able to respond in time. Therefore, there is a need whereby a mobile terminal can power down for longer periods, but allow an AP time to respond to a polling frame.

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Please replace paragraph [0012] (page 4, lines 10-12) with the following amended paragraph:

[0012] FIG. 5 shows a signal flow diagram of a second embodiment of a method for performing a network transaction in a wireless local area network, in accordance with the invention;

Please replace paragraph [0013] (page 4, lines 13-15) with the following amended paragraph:

[0013] FIG. 6 shows a signal flow diagram of a third embodiment of a method for performing a network transaction in a wireless local area network, in accordance with the invention;

Please replace paragraph [0015] (page 4, lines 19-20) with the following amended paragraph:

[0015] FIG. 8 shows ~~shown~~ a flowchart diagram of a method of performing a network transaction in a wireless local area network, in accordance with the invention; and

Please replace paragraph [0019] (page 5, line 12 through page 6, line 2) with the following amended paragraph:

[0019] Referring now to FIG. 3, there is shown a block diagram 300 of a system that can be used to implement the communication device initiated frame exchange method of the present invention. To support telephony voice over a wireless local area network (WLAN) 301, the access point (AP) 304 must be able to exchange voice frames with a plurality of mobile terminals (MT) 302, 303, as shown in FIG. 3. The voice frames generated by the MTs 302, 303, and destined to the AP 304, are referred to herein as uplink traffic. Additionally, the voice frames arriving from the network 306 (based on voice traffic from a public switched telephone network (PSTN) 308, for example) and destined to the MT 302, 303 is referred to herein as downlink traffic. The AP 304 has a memory 305 for storing voice frames received from the wired network until the particular MT for which they are bound polls the AP. Under the present invention, the MTs 302, 303 associate ~~associates~~ themselves with a nearby AP 304, and exchange voice frames

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with the AP 304. According to the preferred embodiment of the invention, the mobile terminals share the channel 3 10, and control polling.

Please replace paragraph [0023] (page 8, line 13 through page 9, line 19) with the following amended paragraph:

[0023] Referring now to FIG. 8, there is shown a flowchart diagram 800 of a method of performing a network transaction in a wireless local area network, in accordance with one embodiment of the invention. At the start 802, the mobile terminal and access point have set up a call, which means there is a voice circuit established to the public switched telephone network from the access point over which the user of the mobile terminal may communicate with another party. During call set-up, the access point may indicate the number of delay frames it will transmit in response to a polling frame so the polling stations can anticipate when the non-delay frames may be ~~maybe~~ sent. According to the invention, the mobile terminal is initially in a low power mode to conserve power. While in the low power mode, the mobile terminal is not able to transmit or receive information because critical hardware components have been turned off so as not to consume power. When the time comes to transmit a poll (804), the mobile terminal must wake up its wireless local area network components by turning them on. The first thing the MT must do after waking up the wireless local area network circuitry is determining if there is data to send (806). If the user of the MT has been speaking, the speech signal will have been voice encoded, or vocoded, and the voice data will be buffered in an outbound or uplink memory of the MT, as is known in the art. If there is no voice data present to transmit, the MT sends ~~sends~~ or transmits a polling frame (808). After transmitting the polling frame, the polled station will send at least one delay frame. While the polling station will receive the delay frame or frames at the physical layer, no data such as voice data is actually received in the sense of passing data from the receiver to other parts of the polling station. If the polled station is fast enough, it may reply without having to send a delay frame, and the polling station may receive a valid non-delay frame (810) in response to the polling frame. The non-delay frame may be a data frame if the polled station has data to transmit to the polling station, or it may be a null frame. If the polled station is slower and requires at least one delay frame to load and send data, as anticipated by the

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invention, then the polling station will receive the delay frame and non-delay frame (812). Once the polling station has finished receiving, if it received a data packet or data frame, then the polling station sends an acknowledgement frame (814). If the polled station had no data to send, then no acknowledgement needs to be sent. At this point the transaction is complete (816) and the mobile terminal can put the WLAN hardware back in low power mode.

Please replace paragraph [0024] (page 9, line 20 through page 10, line 9) with the following amended paragraph:

[0024] If, upon waking up, the polling station does have data to transmit, the polling station sends the data in the polling frame (818). If the Polled station is fast enough, and has data to transmit, it will transmit both an acknowledgement and a data frame (820). If the polled station is slower, and requires at least one delay frame, the polled station will transmit an acknowledgment frame (822) which acts as a delay frame. After receiving the acknowledgement, the polling station then receives any other delay frames, and a non-delay frame (812). If the non-delay frame included data, then the polling station sends an acknowledgement frame (814). After sending the acknowledgement frame, or if the non-delay frame was a null frame, then the polling station goes back to sleep (816). If, after sending the polling frame with data, the polling station does not receive an ~~an~~ ~~[[and]]~~ acknowledgement frame within an expected period of time, the polling station commences resend and repoll procedures (824). If polling station does receive a valid delay frame, but fails to receive a non-delay frame within an expected period of time, the polling station commences repolling ~~repelling~~ procedures (826).

Please replace paragraph [0026] (page 10, line 23 through page 11, line 9) with the following amended paragraph:

[0026] If the polled ~~polling~~ station does not receive data in the polling frame (916), then the polled station sends ~~send~~ a delay frame such as a clear to send (CTS) frame, as described hereinabove. Then, as before, the polled station checks to see if data needs to be transmitted to the polling station, and commences as before if so. When there is no data to be sent to the polling

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station, the non-delay frame sent is a null frame (920). If the polled station did send data to the polling station, but does not receive an acknowledgement from the polling station, the polled station buffers the data for retransmission (922). If possible, the polled station will retransmit the data in the present cycle time frame, but if time has expired, and the polling station is required to cede the channel, the polled station may retain the data in a buffer for quick transmission in the next transaction, in addition to other data, if any other data arrives at the polled station.